

FINAL TECHNICAL REPORT

NAGW 1534, "Computer code for obtaining precipitating electron ..."

University of Maryland 01-5-26954

by David L. Matthews
Principal Investigator

This work closely depends upon a companion project of Stephen Seltzer at NIST, the two having been funded as a package by NASA in January 1989. My letter of October 2, 1989, requesting the award of the second year's funds, stated in part:

2. Work to be done from now through December 31, 1990:

Seltzer's calculations will shortly have advanced far enough that I can proceed with the writing of computer codes which will make his table accessible to staellite, rocket and balloon X-ray observers. ...

Owing to severe difficulties that Seltzer has encountered, only recently has he been able to provide me with a table of computed data, not yet smoothed or interpolated. However, this does complete an important stage in that he has completed the Monte Carlo scattering calculation, and has produced a database of much higher reliability than anything previously available. The remaining problem, whose difficulty has caused much of the delay, and which has not yet been solved by either of us, is finding interpolation algorithms for the data on the grid of atmospheric depth and energy. This is true even though enough particles were used in the calculations to make the statistical fluctuations in the resulting database acceptably small. I can do little on creating actual programs, as specified in my work statement, until I have a clear idea of how the data base is to be interpolated and smoothed.

I have done as much as I could by consulting frequently with Seltzer and others and by trying to find and/or develop suitable interpolation codes.

I intend to continue working on this project without requesting additional funds, at least for the present. I will work closely with Seltzer on the interpolation problem. There are some promising routines available in the SAS package, and I expect to obtain some free computer time from the University to learn and use it. I still believe that it will be possible to accomplish some of the original objectives of this work.

Dr. David L. Matthews, IPST, Univ. of Maryland, College Park MD 20742-2431

Telephone: (301)405-4830

Internet: dmatthews@uap.umd.edu

FAX: (301)314-9363

NSI/SPAN: UMDUAP::DMATTHEWS

(NASA-CR-193642) COMPUTER CODE FOR
OBTAINING PRECIPITATING ELECTRON
SPECTRA BY FITTING CALCULATED
BREMSSTRAHLUNG SPECTRA TO OBSERVED
X RAY DATA Final Technical Report
(Maryland Univ.) 1 p

N94-70221

Unclass

29/72 0179762